SECTION 9
SAMPLE HANDLING AND CUSTODY REQUIREMENTS

Similar sample custody procedures are followed for all monitoring programs. However, program-specific differences exist because the analytical requirements for the programs vary. Because these activities are conducted under one EPA contract, United Parcel Service of America (UPS) with Overnight Delivery will handle all shipping to and from the sites. Unless specified below, samples taken in the field should not require any extra special precautions for shipping.

The Shipping and Receiving Task Leader will ensure that sample media that leaves and field samples that are received in the laboratory follow all procedures listed in this QAPP and the individual SOPs. The Task Leader will also advise the Project Manager of any issues or obstacles regarding sample shipping, receipt, login and storage. The sample custodian working under the Shipping and Receiving Task Leader will ship sample media to the field and receive custody of samples, complete COC receipt information, document sample receipt, and enter COC information into LIMS to create a work order.

9.1 Canister Sample Custody

9.1.1 Canister Custody

A color-coded, three-copy canister sample COC form (Figures 9-1 and 9-2) is shipped with each 6-liter canister for the NMOC, SNMOC, UATMP, NATTS, CSATAM, or PAMS sites. If duplicate or collocated samples are to be taken, two canisters and two COC forms are sent in the shipping container(s) to the site. When a sample is collected, the site operator fills out the form per the instructions in the on-site notebook. The site operator detaches the pink copy to be retained on-site and sends the remaining copies with the canister in the shipping container to ERG's laboratory.

ERG

ERG Lab ID #

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560

NMOC SAMPLE CHAIN OF CUSTODY

Lab Pre-Sampling

Site Code: _____ Canister Number: _____
City/State: _____ Lab Initial Can. Press. ("Hg): _____
AQS Code: _____ Date Can. Cleaned: _____
Collection Date: _____ Cleaning Batch # : _____
Options
NMOC (Y/N): _____
SNMOC (Y/N): _____ Duplicate Event (Y/N): _____
TOXICS (Y/N): _____ Duplicate Can # : _____

Field Setup

Operator: _____ Sys. #: _____ Rotameter Setting: _____
Setup Date: _____ Elapsed Timer Reset (Y/N): _____
Field Initial Can. Press. ("Hg): _____ Canister Valve Opened (Y/N): _____

Field Recovery

Recovery Date: _____ Sample Duration (3 or 24 hr): _____
Field Final Can. Press. (psig): _____ Elapsed Time: _____
Canister Valve Closed (Y/N): _____

Lab Recovery

Received by: _____ Date: _____ Lab Final Can. Press. (psig): _____
Status: Valid Void (Circle one)
If void, why: _____

NMOC

Analyst: _____ Database entry by: _____ Date: _____
Date: _____ Batch ID _____
NMOC Instrument: _____
Inj. 1 (AC): _____ (ppmC): _____
Inj. 2 (AC): _____ (ppmC): _____
Inj. 3 (AC): _____ (ppmC): _____
Average AC: _____
Standard Dev. (AC): _____
Average Conc. (ppmC): _____
Standard Dev. (ppmC): _____

SNMOC Option

Analyst: _____ Date: _____
Batch ID _____

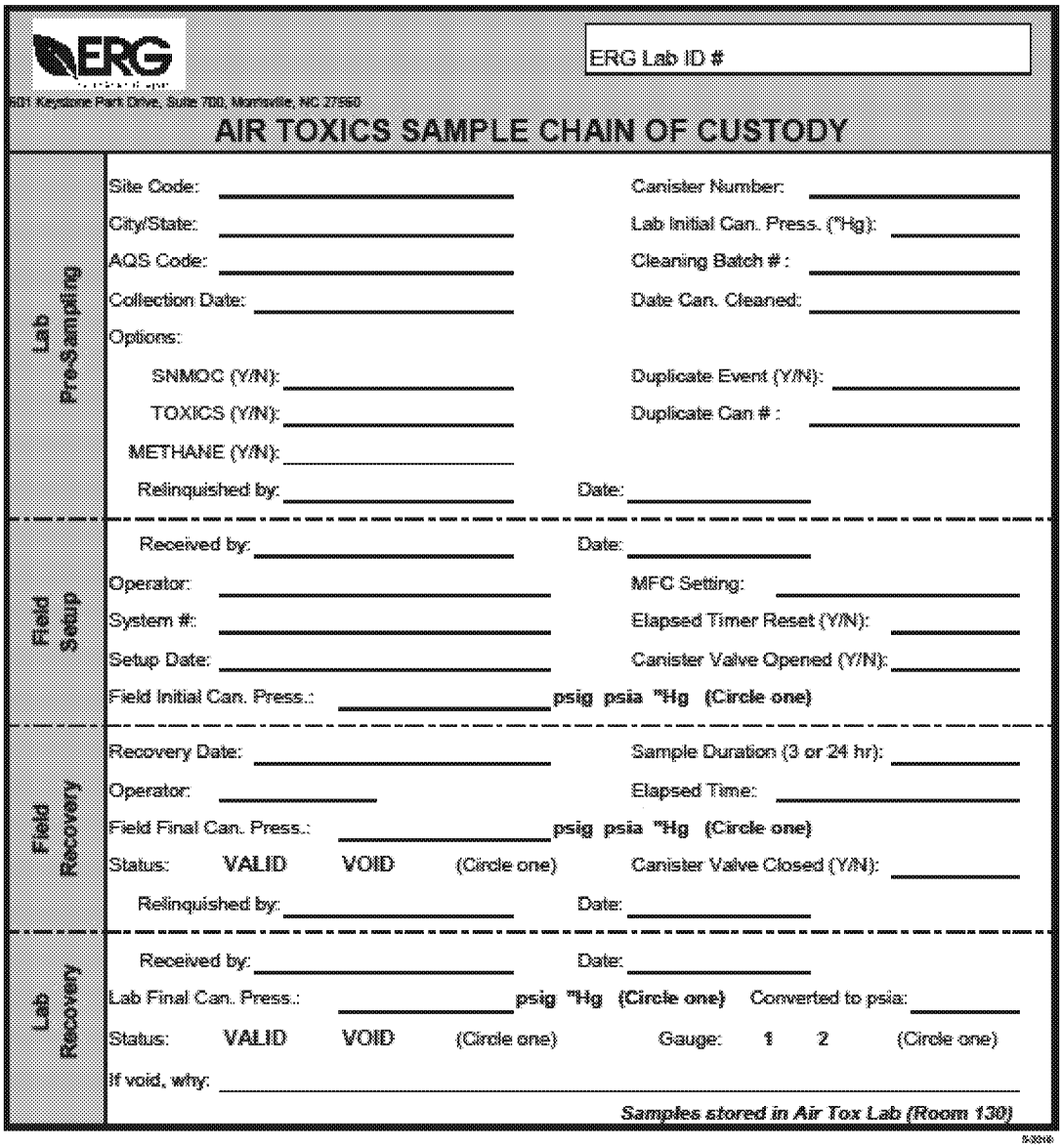
Toxics Option

Analyst: _____ Date: _____
Batch ID _____

Comments: _____

White: Sample Traveler Canary: Lab Copy Pink: Field Copy

Figure 9-1. Example NMOC COC



ERG

ERG Lab ID #

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560

AIR TOXICS SAMPLE CHAIN OF CUSTODY

Lab PreSampling

Site Code: _____ Canister Number: _____

City/State: _____ Lab Initial Can. Press. ("Hg): _____

AQS Code: _____ Cleaning Batch # : _____

Collection Date: _____ Date Can. Cleaned: _____

Options:

SNMOC (Y/N): _____ Duplicate Event (Y/N): _____

TOXICS (Y/N): _____ Duplicate Can # : _____

METHANE (Y/N): _____

Relinquished by: _____ Date: _____

Field Setup

Received by: _____ Date: _____

Operator: _____ MFC Setting: _____

System #: _____ Elapsed Timer Reset (Y/N): _____

Setup Date: _____ Canister Valve Opened (Y/N): _____

Field Initial Can. Press.: _____ psig psia "Hg (Circle one)

Field Recovery

Recovery Date: _____ Sample Duration (3 or 24 hr): _____

Operator: _____ Elapsed Time: _____

Field Final Can. Press.: _____ psig psia "Hg (Circle one)

Status: VALID VOID (Circle one) Canister Valve Closed (Y/N): _____

Relinquished by: _____ Date: _____

Lab Recovery

Received by: _____ Date: _____

Lab Final Can. Press.: _____ psig "Hg (Circle one) Converted to psia: _____

Status: VALID VOID (Circle one) Gauge: 1 2 (Circle one)

If void, why: _____

Samples stored in Air Tox Lab (Room 130)

Comments: _____

White: Sample Traveler Canary: Lab Copy Pink: Field Copy

Figure 9-2. Example Air Toxics COC

Upon receipt, the measured sample canister vacuum/pressure is compared against the field documented vacuum/pressure to ensure the canister remained airtight during transport. If the receiving vacuum differs from the field vacuum more than 3" Hg, the program manager is notified and sample canister may be voided. Because there are potential differences in barometric pressures and temperatures between the sampling site (such as those at high altitudes) and the receiving laboratory and different accuracies for different types of pressure gauges, there can be a difference in final field pressure and lab receipt pressure for canister samples. This difference and other parameters are considered to determine the validity of the canister samples and these are monitored daily by logging the pressures in an Excel spreadsheet. This allows the laboratory the ability to determine if the difference is due to gauges or if the canister leaked en route. A sample of the spreadsheet is presented in Table 9-1.

Table 9-1

Example of Canister Pressure Check Spreadsheet

Date Received	Site	Field Pressure Reading	Lab Pressure Reading	Difference
8/30/16	NBIL	2 " Hg	6 " Hg	4 " Hg
9/7/16	NBIL	1 " Hg	4 " Hg	3 " Hg
9/14/16	NBIL	3 " Hg	7 " Hg	4" Hg
9/16/16	NBIL	4 " Hg	7 " Hg	3 " Hg
8/30/16	BLKY	5 " Hg	5 " Hg	0 " Hg
9/7/16	BLKY	5 " Hg	3.5 " Hg	1.5 " Hg
9/13/16	BLKY	5 " Hg	5 " Hg	0 " Hg
9/16/16	BLKY	5 " Hg	4 " Hg	1 " Hg

The canister should be cleaned no more than 30 days before sampling. If the canister is older than 30 days, a note will be made in LIMS. More detailed sample receipt procedures and sample acceptance policies are presented in the *SOP for Sample Receipt at the ERG Chemistry Laboratory,* ERG-MOR-045 in Appendix C. The sample specific information from the COC is then entered into LIMS (example login page is shown in Figure 9-3) following the *SOP for Sample Login to the Laboratory Information Management System,* ERG-MOR-079 found in Appendix C. The sample is given a unique LIMS identification (ID) number and tagged (see Figure 9-4), noting the site location and the sample collection date.

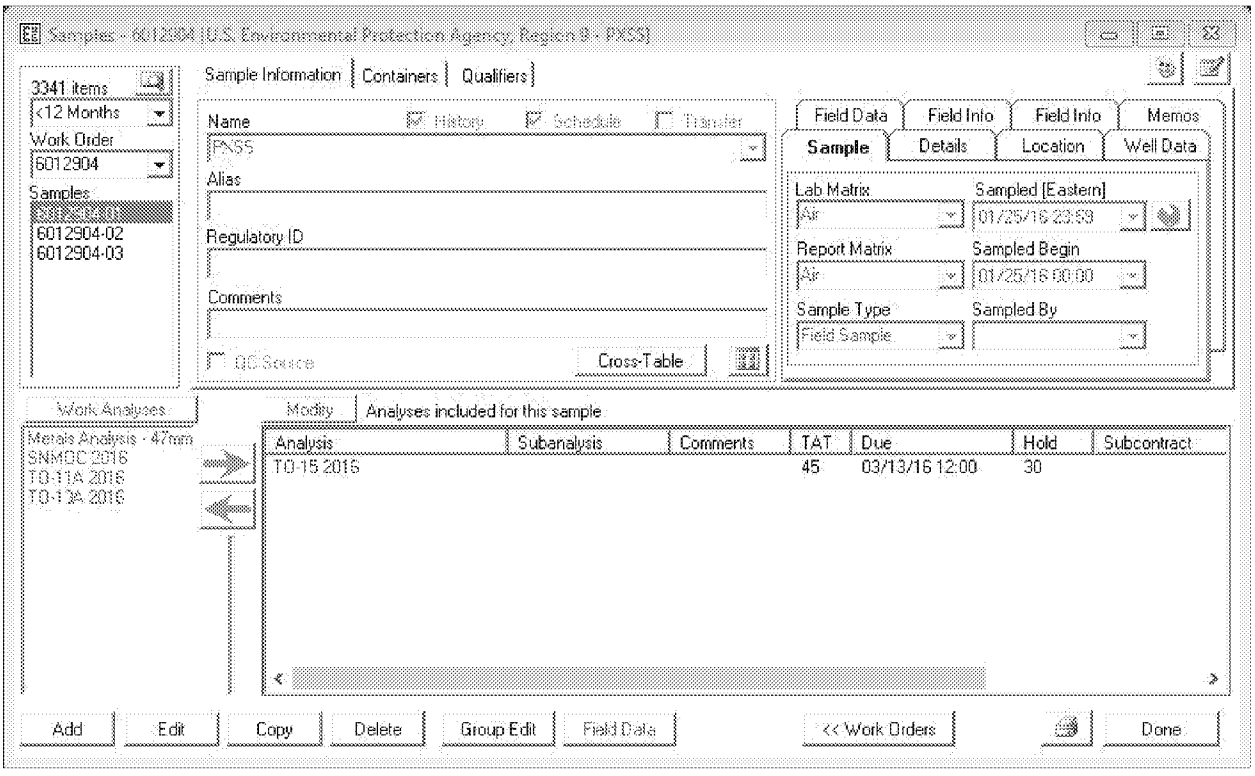


Figure 9-3. Example ERG LIMS Login Page

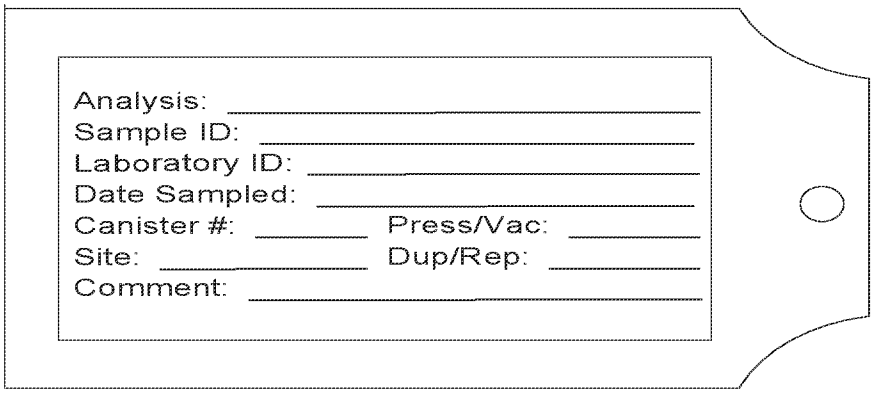


Figure 9-4. Canister Tag

The LIMS ID number is recorded on the canister tag and on all ERG copies of the COC. The remaining copies of the canister sample COC are separated. The white copy is scanned (the PDF is stored in the LIMS system) and is kept with the canister sample until analysis is complete. After sample analysis, the white copy goes into the data package with the sample

data. The yellow copy is stored chronologically in a designated file cabinet for one year. The file cabinet is in Room 102 in the Laboratory building.

9.1.2 Canister Analytical Routing Schedule

The canister samples received from the monitoring sites are assigned a unique LIMS ID number. This number is recorded on the individual Toxics/SNMOC COCs upon receipt at the laboratory for use during sample analysis. Each canister has a unique canister identification number inscribed on the canister. This number is used during can cleaning, field collection, laboratory receipt, and laboratory sample analysis and is included on the individual Toxics/SNMOC COCs and entered into the LIMS.

The canister sample analysis hold time is 30 days from the sampling date. The samples are sent to the ERG Air Toxics Laboratory for VOC and SNMOC/PAMS GC/Flame Ionization Detector/Mass Spectrometer (FID/MS) analysis. The canister sample is analyzed and kept in the laboratory until after the analyst and the Task Leader reviews the relevant analytical data.

9.1.3 Canister Cleanup

All canisters are cleaned prior to reuse using SOP ERG-MOR-105 (*SOP for Sample Canister Cleaning using Wasson TO-Clean Automated System*) as shown in Appendix C. The canisters are cleaned using the procedure described in Section 10.1.1. The unheated system (following SOP ERG-MOR-062, *SOP for Sample Canister Cleaning*) is maintained as a backup and is described in Section 10.1.2. The canisters are cleaned to <3x MDL or 0.2 parts per billion by volume (ppbV), whichever is lower, and 20 parts per billion as Carbon (ppbC) for Total SNMOC. If the canister fails the Blank criteria, it is returned to the cleaning system bank with the other canisters that were cleaned along with it and all canisters are put through an additional Vacuum and Pressure cycle. The same canister then undergoes Blank analysis again. All canisters, whether used for NMOC, SNMOC, UATMP, NATTS, CSATAM, or PAMS, are cleaned by the same procedure and are entered into the canister cleanup log, shown in Figure 9-5 for the heated systems and in Figure 9-6 for the unheated systems.

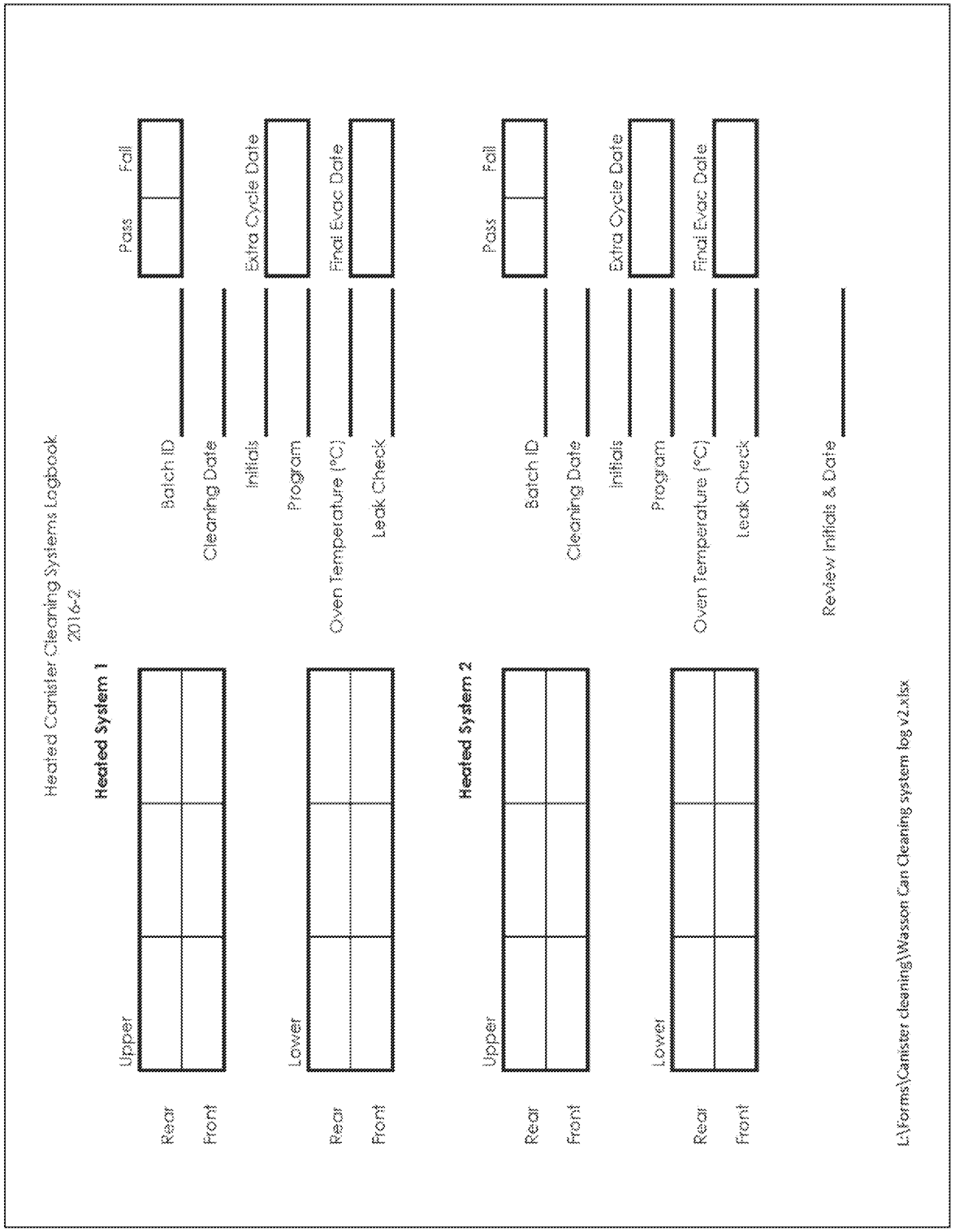


Figure 9-5. Canister Cleanup Log for the ERG Heated Cleaning System

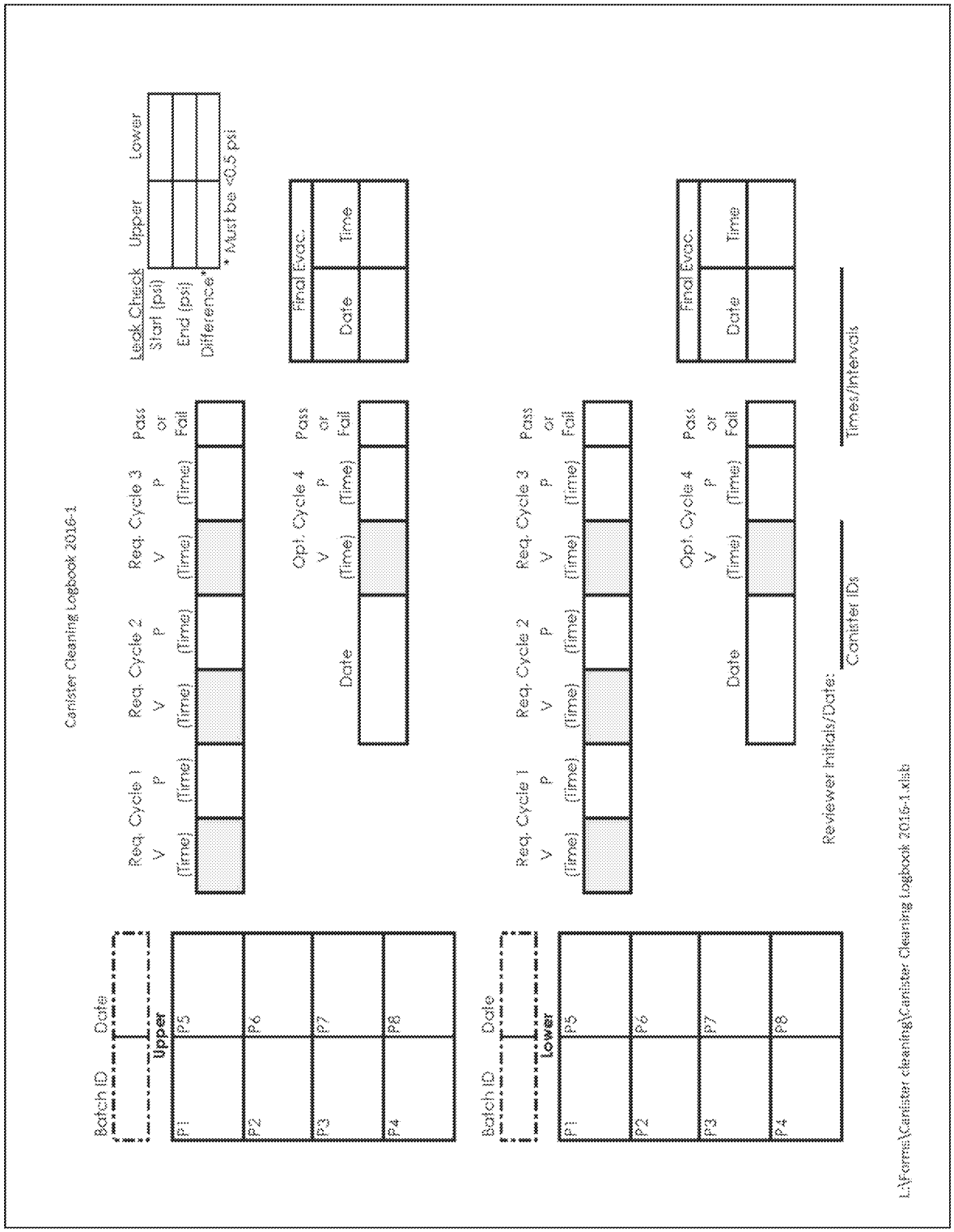


Figure 9-6. Canister Cleanup Log for the ERG Unheated Cleanup System